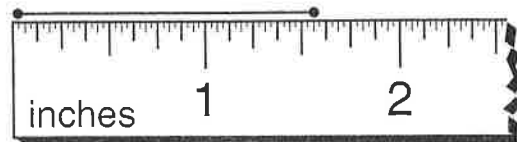


Measurement Concepts

Measure the line segment to the nearest inch, half inch, and quarter inch. Then tell which measurement is the most precise, and why.

To measure to the:



nearest inch	Think: Is the length of the line segment closer to 1 inch or 2 inches?	2 inches
nearest half inch	Think: Is the length of the line segment closer to $1\frac{1}{2}$ inches or 2 inches?	$1\frac{1}{2}$ inches
nearest quarter inch	Think: Is the length of the line segment closer to $1\frac{1}{2}$ inches or $1\frac{3}{4}$ inches?	$1\frac{1}{2}$ inches

Estimate the length of each object. Then use a tape measure, yardstick, or ruler to measure each object.

1. the width of a classroom window

2. the length of your classroom

3. the length of your thumb

4. the height of a backpack

Tell if a measurement is needed or if an estimate is sufficient. Explain your answer.

5. cutting a length of wood for a door frame

6. buying a pane of glass to replace a broken pane

7. finding the distance you walk from school to home

Customary Units of Length

Convert 70 in. to feet and inches.

Step 1: Use the information at the right to find the relationship between inches and feet.

$$12 \text{ in.} = 1 \text{ ft}$$

Step 2: Decide if you should multiply or divide.

An inch is smaller than a foot.

To change from a smaller unit to a larger unit, divide.

Customary Units of Length

$$12 \text{ in.} = 1 \text{ ft} \quad 5,280 \text{ ft} = 1 \text{ mi}$$

$$3 \text{ ft} = 1 \text{ yd} \quad 1,760 \text{ yd} = 1 \text{ mi}$$

$$36 \text{ in.} = 1 \text{ yd}$$

Step 3: Divide by 12 to find the number of feet and inches.

$$70 \div 12 = 5 \text{ R}10$$

$$70 \text{ in.} = 5 \text{ ft and } 10 \text{ in.}$$

$$70 \text{ in.} = 5 \text{ ft } 10 \text{ in.}$$

Complete.

1. _____ in. = 3 ft

2. 14 yd = _____ ft

3. _____ in. = 11 ft

4. 3 mi = _____ ft

5. _____ in. = 5 yd

6. _____ yd = 72 in.

7. _____ ft = 60 in.

8. 9 ft = _____ yd

9. 4 yd = _____ ft

10. _____ in. = 4 ft 3 in.

11. _____ ft = 3 yd 2 ft

12. 152 in. = _____ ft _____ in.

13. 36 ft = _____ yd

14. 7,000 ft = _____ mi _____ ft

15. 1 mi 10 ft = _____ ft

Customary Units of Length

Complete.

1. 36 in. = _____ ft
2. 4 yd 2 ft = _____ ft
3. _____ ft = 14 yd
4. 4 ft 4 in. = _____ in.
5. _____ ft = 3 mi
6. 215 in. = _____ ft _____ in.
7. 7,200 ft = _____ mi _____ ft
8. 3,550 yd = _____ mi _____ yd

9. 4 mi = _____ yd

Compare. Write $>$, $<$, or $=$ for each \bigcirc .

10. 7 yd 1 ft \bigcirc 25 ft
11. 38 in. \bigcirc 3 ft
12. 45 ft \bigcirc 500 in.
13. 7 ft 8 in. \bigcirc 100 in.
14. 16,000 ft \bigcirc 3 mi 200 ft
15. 6 ft 6 in. \bigcirc 75 in.

Which unit would you use to measure each?
Write *inch*, *foot*, *yard*, or *mile*.

16. the length of a goldfish _____
17. the height of a flagpole _____
18. the width of an elephant's ear _____
19. the distance between two cities _____

Test Prep

20. The bookcase in class 5A is 64 inches long. The bookcase in class 5B is 2 feet shorter. How many inches shorter is the bookcase in class 5B?

A 2 in. C 24 in.
B 12 in. D 40 in.
21. Juan is 4 feet tall. Marina is 52 inches tall. Who is taller? Explain your answer.

Customary Units of Weight and Capacity

Complete.

1. 3 T = _____ lb
2. _____ qt _____ pt = 15 pt
3. _____ lb = 64 oz
4. _____ lb = $9\frac{1}{2}$ T
5. 13,700 lb = _____ T _____ lb
6. 18 qt = _____ gal _____ qt
7. _____ c = 16 pt
8. 32 pt = _____ gal
9. _____ pt = 48 c

Compare. Write $>$, $<$, or $=$ for each \bigcirc .

10. 5 pt \bigcirc 9 c
11. 3 T 500 lb \bigcirc 7,000 lb
12. 4 lb \bigcirc 64 oz
13. 3 gal 2 qt \bigcirc 15 qt
14. 36 fl oz \bigcirc 4 c 4 fl oz
15. 48 pt \bigcirc 5 gal 3 qt

Which unit would you use to measure each? Write *oz*, *lb*, *T*, *fl oz*, *c*, *pt*, *qt*, or *gal*.

16. A juice carton holds about 32 _____.
17. A box of paper clips weighs about 3 _____.
18. The capacity of a pitcher is 2 _____.
19. A whale weighs about 2 _____.

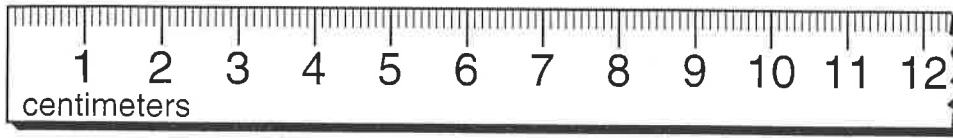


Test Prep

20. Lizzie made $1\frac{1}{2}$ gallons of punch for a party. If there are 8 people altogether and each person drinks the same amount, how many cups of punch will each person drink?

A 2 c C 4 c
B 3 c D 6 c
21. Zack fills a 3-gallon container with equal amounts of juice and seltzer. How many quarts of juice are there?

Metric Units of Length



Use a metric ruler to measure this line segment to the nearest decimeter, centimeter, and millimeter.

Think: Is the length of the line segment closer to 0 dm or 1 dm?

1 dm

Metric Units of Length

10 millimeters (mm) = 1 centimeter (cm)

10 centimeters = 1 decimeter (dm)

10 decimeters = 1 meter (m)

1,000 meters = 1 kilometer (km)

Think: Is the length of the line segment closer to 6 cm or 7 cm?

6 cm

To the nearest millimeter, the line segment measures 63 mm.

Find $7 \text{ km} = \square \text{ m}$

Step 1: Use the table to find the relationship between kilometers and meters.

$1 \text{ km} = 1,000 \text{ m}$

Step 2: Decide if you should multiply or divide.

A kilometer is larger than a meter.

To change a larger unit to a smaller unit, multiply.

Step 3: Multiply.

$7 \times 1,000 = 7,000$

$7 \text{ km} = 7,000 \text{ m}$

Use a ruler to measure each line segment to the nearest decimeter, centimeter, and millimeter.

1.

2.

3.

Complete.

4. $7 \text{ dm} = \underline{\hspace{2cm}} \text{ cm}$

5. $\underline{\hspace{2cm}} \text{ dm} = 6 \text{ m}$

6. $350 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$

Metric Units of Length

Measure each line segment to the nearest decimeter, centimeter, and millimeter.

1. 

2. 

3. 

4. 

Complete.

5. 50 dm = _____ m 6. 7 m = _____ cm 7. _____ m = 5,000 cm

8. 40 dm = _____ cm 9. _____ m = 8 km 10. 9,000 mm = _____ dm

Compare. Write $>$, $<$, or $=$ for each \bigcirc .

11. 40 cm \bigcirc 400 mm 12. 4 km \bigcirc 4,000 m 13. 2,300 mm \bigcirc 22 m

For Exercises 14–15, write the metric unit of length that is reasonable.

14. A door is about 1 _____ wide. 15. A dog is about 5 _____ high.



Test Prep

16. Alita has pieces of rope measuring 7 meters, 690 decimeters, 680 centimeters, and 7,100 millimeters. Which piece of rope is the longest?

- A 7 m C 690 dm
B 680 cm D 7,100 mm

17. 9 m = _____ cm

- A 0.9 C 900
B 90 D 9,000

Metric Units of Mass and Capacity

Metric Units of Mass
1,000 milligrams (mg) = 1 gram (g)
1,000 grams = 1 kilogram (kg)
1,000 kilograms = 1 metric ton (t)

Metric Units of Capacity
1,000 milliliters (mL) = 1 liter (L)
10 deciliters (dL) = 1 liter (L)

Complete. $5 \text{ kg} = \square \text{ g}$

Step 1: Use the table to find the relationship between kilograms and grams.

$$1 \text{ kg} = 1,000 \text{ g}$$

Step 2: Decide if you should multiply or divide.

Kilograms are larger than grams.

To change from a larger unit to a smaller unit, multiply.

Step 3: Multiply by 1,000 to find the number of grams.

$$5 \times 1,000 = 5,000$$

$$5 \text{ kg} = 5,000 \text{ g}$$

Complete.

1. $7 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

2. $9 \text{ t} = \underline{\hspace{2cm}} \text{ kg}$

3. $3,000 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

4. $5 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$

5. $2 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

6. $2 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

7. $13,000 \text{ kg} = \underline{\hspace{2cm}} \text{ t}$

8. $11,000 \text{ mg} = \underline{\hspace{2cm}} \text{ g}$

9. $8 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

10. $8 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

11. $5,000 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

12. $3 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$

13. $12 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

14. $6,000 \text{ kg} = \underline{\hspace{2cm}} \text{ t}$

15. $4,000 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$